

FORM-PTO-1390  
(Rev. 12-29-99)

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

ATTORNEY'S DOCKET NUMBER

**TRANSMITTAL LETTER TO THE UNITED STATES  
DESIGNATED/ELECTED OFFICE (DO/EO/US)  
CONCERNING A FILING UNDER 35 U.S.C. 371**

004565-067

U.S. APPLICATION NO. (If known, see 37 C.F.R. 1.5)

Unassigned **09/807403**INTERNATIONAL APPLICATION NO.  
PCT/GB99/03392INTERNATIONAL FILING DATE  
13 October 1999PRIORITY DATE CLAIMED  
13 October 1998

TITLE OF INVENTION

NEGATIVE PRESSURE THERAPY USING WALL SUCTION

APPLICANT(S) FOR DO/EO/US

Kenneth William HUNT and Keith Patrick HEATON

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This is an express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and the PCT Articles 22 and 39(1).
4. ☒ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5. ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2))
  - a. ☒ is transmitted herewith (required only if not transmitted by the International Bureau).
  - b. ☐ has been transmitted by the International Bureau.
  - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US)
6. ☐ A translation of the International Application into English (35 U.S.C. 371(c)(2)).
7. ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
  - a. ☐ are transmitted herewith (required only if not transmitted by the International Bureau).
  - b. ☐ have been transmitted by the International Bureau.
  - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
  - d. ☒ have not been made and will not be made.
8. ☐ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. ☐ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
10. ☐ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

Items 11. to 16. below concern other document(s) or information included:

11. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. ☒ A **FIRST** preliminary amendment.
 ☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
14. ☐ A substitute specification.
15. ☐ A change of power of attorney and/or address letter.
16. ☒ Other items or information:

PCT INTERNATIONAL SEARCH REPORT; PCT DEMAND CHAPTER II; NOTIFICATION OF RECEIPT OF DEMAND BY COMPETENT INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY; PCT WRITTEN OPINION; PCT INTERNATIONAL PRELIMINARY EXAMINATION REPORT

U.S. APPLICATION NO. (if known, use 37 CFR 1.150) <b>Unassigned</b>		INTERNATIONAL APPLICATION NO. <b>PCT/GB99/03392</b>		ATTORNEY'S DOCKET NUMBER <b>004565-067</b>	
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17. <input checked="" type="checkbox"/> The following fees are submitted:				<b>CALCULATIONS</b>		PTO USE ONLY	
<b>Basic National Fee (37 CFR 1.492(a)(1)-(5)):</b>  Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO ..... \$1,000.00 (960)  International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO ..... \$860.00 (970)  International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO ..... \$710.00 (958)  International preliminary examination fee paid to USPTO (37 CFR 1.482) but all claims did not satisfy provisions of PCT Article 33(1)-(4) ..... \$690.00 (956)  International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(1)-(4) ..... \$100.00 (962)							
<b>ENTER APPROPRIATE BASIC FEE AMOUNT =</b>						\$ 860.00	
Surcharge of \$130.00 (154) for furnishing the oath or declaration later than 20 <input type="checkbox"/> 30 <input type="checkbox"/> months from the earliest claimed priority date (37 CFR 1.492(e)).				\$			
Claims	Number Filed	Number Extra	Rate				
Total Claims	11 -20 =	0	X\$18.00 (966)	\$			
Independent Claims	2 -3 =	0	X\$80.00 (964)	\$			
Multiple dependent claim(s) (if applicable)			+ \$270.00 (968)	\$			
<b>TOTAL OF ABOVE CALCULATIONS =</b>				\$ 860.00			
Reduction for 1/2 for filing by small entity, if applicable (see below).				\$		-	
<b>SUBTOTAL =</b>				\$ 860.00			
Processing fee of \$130.00 (156) for furnishing the English translation later than 20 <input type="checkbox"/> 30 <input type="checkbox"/> months from the earliest claimed priority date (37 CFR 1.492(f)).				\$			
				+			
<b>TOTAL NATIONAL FEE =</b>				\$ 860.00			
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 (581) per property +				\$			
<b>TOTAL FEES ENCLOSED =</b>				\$ 860.00			
				Amount to be: refunded		\$	
				charged		\$	

a. ☐ Small entity status is hereby claimed.

b. ☒ A check in the amount of \$ 860.00 to cover the above fees is enclosed.

c. ☐ Please charge my Deposit Account No. 02-4800 in the amount of \$ \_\_\_\_\_ to cover the above fees. A duplicate copy of this sheet is enclosed.

d. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 02-4800. A duplicate copy of this sheet is enclosed.


**NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.**

SEND ALL CORRESPONDENCE TO:

William C. Rowland  
BURNS, DOANE, SWECKER & MATHIS, L.L.P.  
P.O. Box 1404  
Alexandria, Virginia 22313-1404  
(703) 836-6620

  
 SIGNATURE  
 William C. Rowland  
 NAME  
 30,888  
 REGISTRATION NUMBER

April 13, 2001

Patent  
Attorney's Docket No. 004565-067

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Patent Application of )  
)  
Kenneth William HUNT et al. ) Group Art Unit: Unassigned  
)  
Application No.: Unassigned ) Examiner: Unassigned  
)  
Filed: April 13, 2001 )  
)  
For: NEGATIVE PRESSURE THERAPY )  
USING WALL SUCTION )  
)  
)  
)

**PRELIMINARY AMENDMENT**

Assistant Commissioner for Patents  
Washington, D.C. 20231

Sir:

Kindly amend the above-identified application as follows:

**IN THE CLAIMS:**

Please replace claims 3-5, 10 and 11 as follows:

3. (Amended) Apparatus as claimed in claim 1 which includes a pressure relief valve which is connected to the suction tube between the foam pad and the canister.

4. (Amended) A modification of the apparatus as claimed in claim 1 which includes a first transducer for measuring pressure in a tube linking the canister to the wall suction point or to a vacuum bottle, and a second transducer for measuring pressure at the wound site.

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5. (Amended) Apparatus as claimed in claim 1 which includes flow rate measuring means for measuring the rate at which fluid is sucked from the wound site.

10. (Amended) Apparatus according to claim 8 which further includes means for monitoring pressure at the wound site.

11. (Amended) Apparatus according to claim 8 which further includes means for regulating pressure between the canister and the suction source.

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T02020-0942050

**REMARKS**

If the Examiner has any questions concerning the amendment or the above-identified application in general, the Examiner is invited to contact the undersigned so as to expedite prosecution.

Respectfully submitted,

BURNS, DOANE, SWECKER & MATHIS, L.L.P.

By: William C. Rowland  
William C. Rowland  
Registration No. 30,888

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(703) 836-6620

Date: April 13, 2001

03607403-070204

**Attachment to Preliminary Amendment dated April 13, 2001**

**Marked-up Claims 3-5, 10 and 11**

3. (Amended) Apparatus as claimed in claim 1 [or 2] which includes a pressure relief valve which is connected to the suction tube between the foam pad and the canister.

4. (Amended) A modification of the apparatus as claimed in [any one of the preceding claims] claim 1 which includes a first transducer for measuring pressure in a tube linking the canister to the wall suction point or to a vacuum bottle, and a second transducer for measuring pressure at the wound site.

5. (Amended) Apparatus as claimed in [any one of the preceding claims] claim 1 which includes flow rate measuring means for measuring the rate at which fluid is sucked from the wound site.

10. (Amended) Apparatus according to claim 8 [or 9] which further includes means for monitoring pressure at the wound site.

11. (Amended) Apparatus according to [any one of claims 8 to 10] claim 1 which further includes means for regulating pressure between the canister and the suction source.

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NEGATIVE PRESSURE THERAPY USING WALL SUCTION

This invention relates to negative pressure therapy and provides a device which can be used to provide such therapy on connection to an existing source of suction, such as a vacuum line.

Our prior patent application WO 97/18007 describes portable wound treatment apparatus for stimulating the healing of wounds. The apparatus described in our above application comprises a porous pad, which is permeable to fluids, for packing into or over the wound, dressings for covering and for providing an air-tight seal around the wound, and a drainage tube connecting the pad to a suction pump so that negative pressure can be applied to the wound to draw fluids therefrom, a canister being provided for collecting fluids which are sucked from the wound.

The apparatus described in our above application can be worn by the patient on a harness or sling so that he is not confined to one particular place while the therapy is in progress. There is, however, a demand for a more basic piece of equipment which, although not as sophisticated as the equipment described in our above application, does provide some of the benefits of negative pressure therapy.

Most hospitals have a suction line which is fed to all the wards and is available to nursing staff for a variety of purposes, such as powering drainage tubes and suctioning body fluids generally. For such uses, a pressure regulator may be connected to the source of suction and this regulator may include a pressure gauge indicating the pressure at the regulator valve. It is, however, dangerous to connect such a suction source directly with a patient, without providing continuous supervision. In many hospitals, shortage of staff makes it difficult or impossible to

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provide adequate close supervision, and if attempts are made to use such a source for negative pressure therapy, there is a very real danger of injuring the patient.

In some hospitals, vacuum bottles may be employed to assist drainage from wounds, e.g. after operations. Such bottles are containers which are available in various capacities and which are evacuated to low pressure. Vacuum bottles can be used in accordance with the invention as an alternative to a wall suction point. They have the advantage of providing a greater degree of portability to the negative pressure therapy apparatus, but the disadvantage that the bottle needs to be replaced with a fresh bottle once the pressure in the bottle has increased to the vicinity of ambient pressure.

An object of the present invention is to provide equipment which can be used with an existing wall suction source to safely provide negative therapy to patients.

According to one aspect of the present invention there is provided apparatus for applying negative pressure therapy to a wound site, said apparatus comprising an open celled foam pad for application to the wound, a suction tube connecting the foam pad to a collection canister, said canister having a shut-off valve which closes the outlet from the canister when it is full, a tube for connecting the canister to a wall suction point or a vacuum bottle and a pressure detecting means connected to the suction tube between the foam pad and the canister for indicating when the pressure in the suction tube falls below a predetermined level. The pressure detecting means may be a transducer which is connected by a branch tube to the suction tube leading from the foam pad to the canister. The transducer may be set to generate a visible and/or audible warning when the pressure in the suction tube falls below a pre-set level. A



sudden pressure drop in the suction line would indicate that the canister is full and, consequently, there is no longer any effective therapy being applied to the therapy.

The canister full situation would normally be indicated by substantially zero pressure in the suction line. The transducer may also be set to activate a warning in the event that the pressure in the suction line does not reach a minimum pre-set pressure, or the pressure rises towards atmospheric after suction has initially been established, thereby indicating a gross leak in the system.

Preferably, the apparatus also includes a flow limiter in the line connecting the canister to the wall suction source so as to prevent the flow in the suction tube exceeding a pre-set level.

The apparatus may include a display panel which indicate the pressure existing at any one moment in the suction line. The transducer may also be adjustable so that indication or warning is given at different pre-set pressures.

The apparatus as described above may be adapted to give intermittent pressure therapy by providing a relief valve in a tube leading from the suction line. This relief valve may be programmable by a processor so that it is openable and closeable according to a pre-set programme thereby providing intermittent negative pressure therapy to the wound site.

Further features described below may also be introduced into the apparatus as described to give further desirable features.

Several embodiments in accordance with the invention will now be described with reference to the accompanying drawings, in which:-

Figure 1 is a diagrammatic representation of one embodiment in accordance with the invention;

Figure 2 is a diagrammatic representation of a second embodiment; and

Figures 3A & 3B are diagrammatic representations of a collection canister for monitoring rates of flow of fluids sucked from the wound.

Referring to Figure 1 of the drawings, the apparatus for applying negative therapy comprises a foam pad (1) which is applied over or packed into a wound to be treated and is connected by a suction tube (2) to a canister (3). The canister (3) may be of conventional design having a shut-off valve (shown diagrammatically at (140), which automatically closes once the canister is full. The foam pad may comprise any suitable interconnected cellular foam. Foams which have been found to be especially suitable are polyurethane and polyvinyl alcohol foams or combinations thereof, having interconnected cells.

As shown in Figures 1 and 2, the foam pad is packed into the open wound and connected to the negative pressure source by a connector device (100) comprising a flexible backing plate (110) and an integral connector tube (120). The connector tube (120) is dimensioned internally to receive the suction tube or tubes (2) as a substantially air-tight fit. The foam pad and connector combination is secured to the wound to be treated by a surgical drape (130), which may be formed with an aperture to permit the tubular part (120) of the connector to pass through the drape.

A connector of this kind is described in UK Patent Application No. 9819678.5, WO 99/ 13793 and the corresponding US Patent Application filed on 9

July 1999 (attorney ref: 1009.1094) entitled "Surgical drape and suction head for wound treatment", the disclosure of which is specifically incorporated herein.

A suitable canister of this kind is described in WO 97/18007, European Patent Application No. 0358302 or in US Patent Application No. 09/078223, the disclosure of which is specifically incorporated herein.. The canister is also connected via a further tube (4) to a pressure regulator (5). The pressure regulator carries a gauge (6) and is connected to an existing vacuum line such as a standard hospital wall suction source (7). In many hospital installations a regulator valve (5), together with a pressure gauge (6) already exist, attached to an existing suction source or can be fitted to an existing outlet in the suction source supply. The apparatus may also include an optional flow limiter (8), which may be adjusted to provide different desired levels of flow in the system.

Pressure in the suction tube (2) is measured by a branch tube (9) which is connected to the suction tube and to a transducer (10). The transducer (10) is mounted on a process control board (12) and this may be connected to a visual display (13). An optional relief valve (11) may also be connected into the tube (9) and provide a means for controlling the level of negative pressure at the wound site. The relief valve (11) may be manually settable so that the pressure at the wound site does not exceed a predetermined figure. In a more esoteric version, the relief valve may be electronically controlled from the PCB to relieve pressure at the wound site at pre-settable maximum pressures. Many hospitals, in addition to having a suction source and a pressure regulator such as regulator (5), also have body fluid collection canisters (3) supplied for other purposes. It may, therefore, be possible to supply to the

hospital apparatus included in the dotted line shown in Figure 1, together with foams and connecting tubes so that they can connect the existing apparatus to a canister and a regulator (5) available in the hospital.

A more elaborate system is shown in Figure 2, which is similar to the arrangement shown in Figure 1 except for the following features described below. The same reference numerals indicate features common to both embodiments. First, the pressure regulator 15 connecting the apparatus to the wall suction source 17 is electronically controlled by the process control board (12). Secondly, the pressure at the wound site is monitored by a transducer (20), while the pressure in the tube connecting the canister to the regulator is measured by a transducer (21). The transducer (20) is connected to the wound side by a tube (23). Instead of providing separate tubes (2) and (23), a single bi- or multi-lumen tube may be used as described in our co-pending application WO97/18007. A relief valve (24) communicates with the tube (23) and enables the apparatus to operate intermittently in a controllable manner by intermittently reducing flow through the regulator (8) and venting pressure through the valve (11). The canister full situation is detected by noting a pressure differential between transducer (20) and transducer (21), or by means of a separate fluid level sensor. Pressure detection at the wound site via the transducer (20) also indicates whether there is a pressure leak or no therapy. A custom-made canister (32) may include means for sensing electronically when the canister is full and must be replaced, e.g. by capacitance measuring means (34). Preferably, the canister is designed to fit into a recess in a custom made housing (30), indicated by dotted lines.

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The housing may be directly connected at one end to the wall suction point (7), and at the other to a tube or tubes leading to the foam pad (1) at the wound site.

In the embodiment of Figure 2, the transducers (20 & 21), the relief valve (11) and pressure regulator (8) are preferably all electronically controlled by connections to the PCB. For example, the canister full situation is detected by comparison of the pressure difference between transducers (20 & 21) and this can be signalled on the display (13) and, optionally, also by an audible warning signal.

It may be desirable to measure the rate at which fluids are sucked from the wound site. This is conveniently achieved by measuring the rate at which the canister is filled with wound exudate. A suitable device is shown diagrammatically in Figure 3. In one configuration shown in Figure 3A, a sleeve (33) is held in intimate contact with the outer surface of the canister. This sleeve carries a single sensing element (35), e.g. capacitive sensor that can provide a means of sensing the presence of liquid at different levels in the canister by simply moving the sleeve up and down the canister. The sensing element detects the presence of liquid by projecting an electrical field into the canister and detecting any change in that field, e.g. by a change in capacitance. The rate of change of capacity over the portion of the canister surveyed by the detector gives an indication of rate of flow of fluid sucked from the wound site.

In another configuration shown in Figure 3B, a series of sensing elements (36) are evenly spaced on a sleeve (33) that is in contact with the outer surface of the canister. As the fluid level rises within the canister, the sensing elements are triggered. This information can then be used by the control system at the PCB to deduce flow rate.

**CLAIMS:-**

1. Apparatus for applying negative pressure therapy to a wound site, which comprises an open celled foam pad for application to the wound, a suction tube connecting the foam pad to a collection canister, said canister having a shut-off valve which closes the outlet from the canister when it is full, a tube for connecting the canister to a wall suction point or to a vacuum bottle, and a pressure detecting means connected to the suction tube between the foam pad and the canister for indicating when the pressure in the suction tube falls below a predetermined level.

2. Apparatus as claimed in claim 1 which includes a flow limiting valve disposed between the canister and the suction source.

3. Apparatus as claimed in claim 1 or 2 which includes a pressure relief valve which is connected to the suction tube between the foam pad and the canister.

4. A modification of the apparatus as claimed in any one of the preceding claims which includes a first transducer for measuring pressure in a tube linking the canister to the wall suction point or to a vacuum bottle, and a second transducer for measuring pressure at the wound site.

5. Apparatus as claimed in any one of the preceding claims which includes flow rate measuring means for measuring the rate at which fluid is sucked from the wound site.

6. Apparatus as claimed in claim 6 in which the flow rate measuring means comprises a device for measuring the rate at which the canister is filled.

7. Apparatus as claimed in claim 6 in which the flow rate measuring means is an electrical capacitance measuring device.

8. Apparatus for applying negative pressure therapy to a wound site, which comprises an open-celled foam pad for application to the wound, a suction tube connecting the foam pad to a collection canister, a tube for connecting the canister to a wall suction point or a vacuum bottle and means for sensing when the canister is full.

9. Apparatus according to claim 8 which includes means for giving a warning that the canister is full and/or shutting off the connection between the canister and the wall suction point.

10. Apparatus according to claim 8 or 9 which further includes means for monitoring pressure at the wound site.

11. Apparatus according to any one of claims 8 to 10 which further includes means for regulating pressure between the canister and the suction source.

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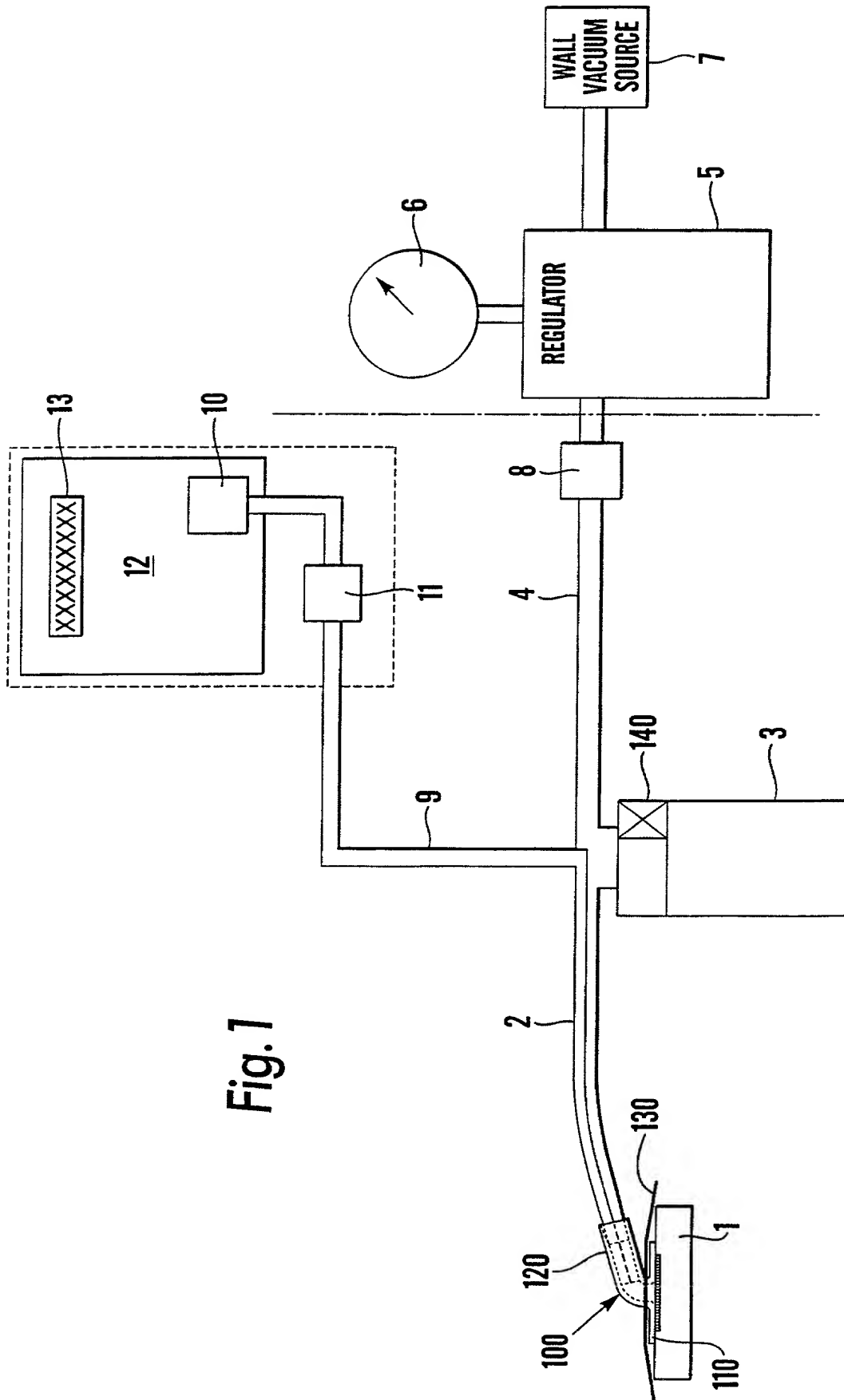


Fig. 1





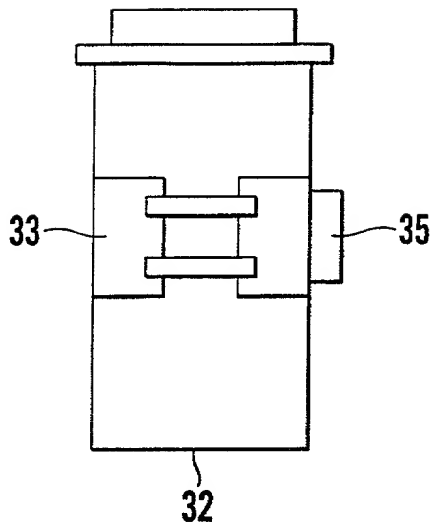


Fig.3A

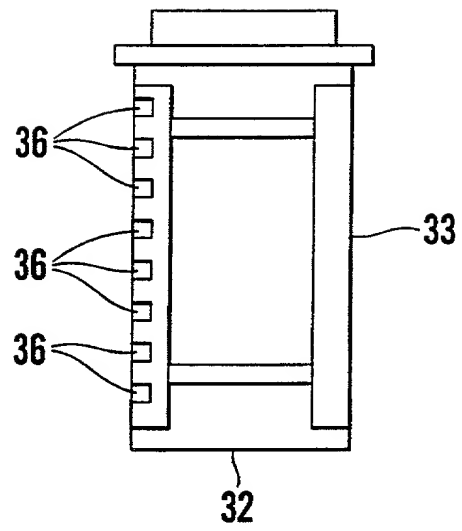


Fig.3B

<b>COMBINED DECLARATION FOR PATENT APPLICATION AND POWER OF ATTORNEY</b> (Includes Reference to Provisional and PCT International Applications)	Attorney's Docket No. 00456-067
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As a below named inventor, I hereby declare that:  
 My residence, post office address and citizenship are as stated below next to my name;  
 I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor  
 (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention  
 entitled:

**NEGATIVE PRESSURE THERAPY USING WALL SUCTION**

the specification of which (check only one item below):

☐ is attached hereto.

☒ was filed as United States application  
 Number \_\_\_\_\_  
 on April 13, 2001  
 and was amended  
 on April 13, 2001 (if applicable).

☐ was filed as PCT international application  
 Number \_\_\_\_\_  
 on \_\_\_\_\_  
 and was amended  
 on \_\_\_\_\_ (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims,  
 as amended by any amendment referred to above.

I acknowledge the duty to disclose to the Office all information known to me to be material to patentability as defined in  
 Title 37, Code of Federal Regulations, §1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, §119 (a)-(e) of any foreign application(s) for  
 patent or inventor's certificate or of any PCT international application(s) designating at least one country other than the  
 United States of America listed below and have also identified below any foreign application(s) for patent or inventor's  
 certificate or any PCT international application(s) designating at least one country other than the United States of America  
 filed by me on the same subject matter having a filing date before that of the application(s) of which priority is claimed:

PRIOR FOREIGN/PCT APPLICATION(S) AND ANY PRIORITY CLAIMS UNDER 35 U.S.C. §119:			
COUNTRY (if PCT, indicate "PCT")	APPLICATION NUMBER	DATE OF FILING (day, month, year)	PRIORITY CLAIMED UNDER 35 U.S.C. §119
Great Britain	9822341.5	13 October 1998	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
			<input type="checkbox"/> Yes <input type="checkbox"/> No
			<input type="checkbox"/> Yes <input type="checkbox"/> No
			<input type="checkbox"/> Yes <input type="checkbox"/> No
			<input type="checkbox"/> Yes <input type="checkbox"/> No

I hereby claim the benefit under Title 35, United States Code § 119(e) of any United States provisional application(s) listed  
 below.

_____ (Application Number)	_____ (Filing Date)
_____ (Application Number)	_____ (Filing Date)

Page 1 of 3

(01/01)

<b>COMBINED DECLARATION FOR PATENT APPLICATION AND POWER OF ATTORNEY (CONT'D)</b> (Includes Reference to Provisional and PCT International Applications)	Attorney's Docket No. 004565-067
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I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) or PCT international application(s) designating the United States of America that is/are listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in that/those prior application(s) in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose to the Office all information known to me to be material to the patentability as defined in Title 37, Code of Federal Regulations §1.56, which became available between the filing date of the prior application(s) and the national or PCT international filing date of this application:

PRIOR U.S. APPLICATIONS OR PCT INTERNATIONAL APPLICATIONS DESIGNATING THE U.S. FOR BENEFIT UNDER 35 U.S.C. §120:

U.S. APPLICATIONS		STATUS (check one)		
U.S. APPLICATION NUMBER	U.S. FILING DATE	PATENTED	PENDING	ABANDONED
PCT APPLICATIONS DESIGNATING THE U.S.				
PCT APPLICATION NO.	PCT FILING DATE	U.S. APPLICATION NUMBERS ASSIGNED (if any)		
PCT/GB99/03392	13 October 1999		X	

I hereby appoint the following attorneys and agent(s) to prosecute said application and to transact all business in the Patent and Trademark Office connected therewith and to file, prosecute and to transact all business in connection with international applications directed to said invention:

William L. Mathis	17,337	Eric H. Weisblatt	30,505	Bruce T. Wieder	33,815
Robert S. Swecker	19,885	James W. Peterson	26,057	Todd R. Walters	34,040
Platon N. Mandros	22,124	Teresa Stanek Rea	30,427	Ronni S. Jillions	31,979
Benton S. Duffett, Jr.	22,030	Robert E. Krebs	25,885	Harold R. Brown III	36,341
Norman H. Stepno	22,716	William C. Rowland	30,888	Allen R. Baum	36,086
Ronald L. Grudziecki	24,970	T. Gene Dillahunt	25,423	Steven M. duBois	35,023
Frederick G. Michaud, Jr.	26,003	Patrick C. Keane	32,858	Brian P. O'Shaughnessy	32,747
Alan E. Kopecki	25,813	B. Jefferson Boggs, Jr.	32,344	Kenneth B. Leffler	36,075
Regis E. Slutter	26,999	William H. Benz	25,952	Fred W. Hathaway	32,236
Samuel C. Miller, III	27,360	Peter K. Skiff	31,917	Wendi L. Weinstein	34,456
Robert G. Mukai	28,531	Richard J. McGrath	29,195	Mary Ann Dillahunt	34,576
George A. Hovanec, Jr.	28,223	Matthew L. Schneider	32,814		
James A. LaBarre	28,632	Michael G. Savage	32,596		
E. Joseph Gess	28,510	Gerald F. Swiss	30,113		
R. Danny Huntington	27,903	Charles F. Wieland III	33,096		



21839

and:

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21839

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Address all telephone calls to: William C. Rowland at (703) 836-6620.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

<b>COMBINED DECLARATION FOR PATENT APPLICATION AND POWER OF ATTORNEY (CONT'D)</b> (Includes Reference to Provisional and PCT International Applications)		Attorney's Docket No. 004565-067
1-00 FULL NAME OF SOLE OR FIRST INVENTOR Kenneth William HUNT		SIGNATURE X <i>[Signature]</i>
RESIDENCE Dorset, United Kingdom GBX		DATE 22nd June 2001
POST OFFICE ADDRESS 18 Egon Drive, Merley, Wimbourne, Dorset BH21 1TY, United Kingdom		CITIZENSHIP British
2-00 FULL NAME OF SECOND JOINT INVENTOR, IF ANY Keith Patrick HEATON		SIGNATURE X <i>[Signature]</i>
RESIDENCE Dorset, United Kingdom GBX		DATE 22nd June 2001
POST OFFICE ADDRESS 33 Hermitage Road, Poole, Dorset BH14 0OG, United Kingdom		CITIZENSHIP British